

Claims

1. A gas generator comprising a container (12) filled with a pressurized fluid (14) and having an outflow opening (16), and

5 a piston (20; 120) which is displaceably arranged in said container (12) and has a shutter opening (22; 122) dividing said container (12) into a first chamber (24) and a second chamber (26), said first and second chambers (24, 26) being filled with said fluid (14),

10 said piston (20; 120) on activation of said gas generator (10; 100) and when said outflow opening (16) has been opened, being moved by a pressure prevailing in said second chamber (26) from a predetermined initial position (AP) in a direction towards said outflow opening (16) into an end position (EP) in which a volume of said first chamber (24) is significantly reduced compared with a start volume of said first chamber (24).

15 2. The gas generator according to Claim 1, characterized in that said end volume of said first chamber (24) in said end position (EP) of said piston (20; 120) is reduced by more than 50 % compared with said start volume of said first chamber (24) in said initial position (AP) of said piston (20; 120).

3. The gas generator according to Claim 1, characterized in that said piston (20; 20'; 120) consists of plastic.

20 4. The gas generator according to Claim 1, characterized in that said piston (20; 20'; 120) is fixed in said initial position (AP) by at least one spring (32).

5. The gas generator according to Claim 4, characterized in that said at least one spring (32) is provided in said first chamber (24).

25 6. The gas generator according to Claim 4, characterized in that said at least one spring (32) is provided in said second chamber (26).

7. The gas generator according to Claim 4, characterized in that said at least one spring (32) consists of plastic.

8. The gas generator according to Claim 1, characterized in that said shutter opening (22; 22') is closed by a bursting membrane (30; 30') before said gas  
5 generator is activated.

9. The gas generator according to Claim 1, characterized in that at least two pistons (20; 20'), coupled by at least one spring (32), are provided in said container (12).

10. The gas generator according to Claim 1, characterized in that said shutter opening (22; 22') has a smaller cross-section than said outflow opening (16).

11. The gas generator according to Claim 1, characterized in that in said container (12) a diffuser (150) is provided, which defines an outlet space (152) situated in said container (12),  
said diffuser (150) having at least one first and one second through-flow opening  
15 (160, 162) arranged at different axial positions and  
said diffuser (150) projecting into said shutter opening (122).

12. The gas generator according to Claim 11, characterized in that in said end position (EP) said second through-flow opening (162) is opened, and said first through-flow opening (160) is closed by said piston (120, 170).

20 13. The gas generator according to Claim 12, characterized in that said second through-flow opening (162) has a smaller cross-section than said first through-flow opening (160).

25 14. The gas generator according to Claim 11, characterized in that said first through-flow opening in said initial position (AP) connects said outlet space (152) with said first chamber (24) and in said end position (EP) said second through-

flow opening (162) connects said outlet space (152) with said second chamber (26).

15 The gas generator according to Claim 1, characterized in that said at least one spring (32) is provided in said first chamber (24) and, in said end position (EP), is pushed to block by said piston (20).

16 The gas generator according to Claim 1, characterized in that in said end position (EP) said piston (20) hits an end wall (50) of said container (12)

10 17. A method of operating a gas generator (10) comprising a container (12) filled with a pressurized fluid (14) and having an outflow opening (16), and a piston (20; 120) which is displaceably arranged in said container (12) and has a shutter opening (22; 122) dividing said container (12) into a first chamber (24) and a second chamber (26), said first and second chambers (24, 26) being filled with said fluid (14), said piston (20; 120) on activation of said gas generator (10; 100) and when said outflow opening (16) has been opened, being moved by a pressure prevailing in said second chamber (26) from a predetermined initial position (AP) in a direction towards said outflow opening (16) into an end position (EP) in which an end volume of said first chamber (24) is significantly reduced compared with a start volume of said first chamber (24),

said outflow opening (16) being opened in a first step, and

20 said piston (20; 120) being moved in a second step from a predetermined initial position (AP) in a direction towards said outflow opening (16) into an end position (EP), so that it assists said fluid (14) situated in said first chamber (24) in escaping,

25 said movement of said piston (20; 120) significantly reducing said start volume of said first chamber (24).

18. The method according to Claim 17, in which said piston (20; 120) has a shutter opening (22) which before activation of said gas generator (10) is closed

by a bursting membrane (30) which only bursts when said piston (20) has taken up said end position (EP).

19. The method according to Claim 17, in which said start volume of said first chamber (24) is reduced by at least 50 % through said movement of said piston (20; 120) from said initial position (AP) into said end position (EP).
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